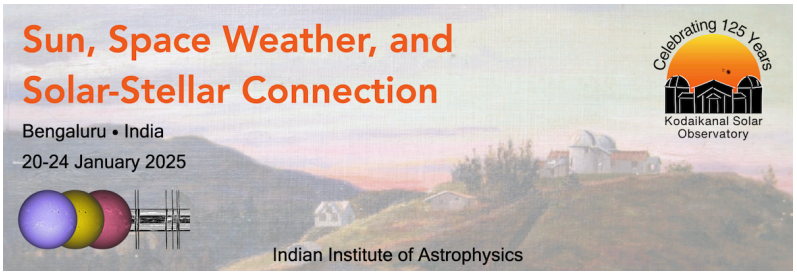

Contribution ID: **180** Type: **Poster**

Using Mars Rover's Onboard Imaging Equipment to Observe Solar Far-side Active Regions to Enhance Earth-based Solar Observations.

The Perseverance Rover has been on the Martian surface since February 2021. The rover has Mastcam-Z navigation stereo cameras (Kinch et al., 2020) that can capture direct images of the Sun's surface. During periods of Mars's orbit, the rover has a unique view-point of the Sun's far-side (not visible from Earth at any given time). Solar scientists can use the rover's conveniently positioned cameras to monitor sunspots that we cannot otherwise observe. By collecting these data, we can verify helioseismic detections of the Sun's largest far-side active regions. In this project, solar far-side acoustic images obtained using time-distance helioseismology (Zhao et al., 2019) and SDO/HMI Dopplergrams (Scherrer et al., 2011) are compared with white-light observations from the Perseverance Mastcam-Z cameras. By taking advantage of Mars' orbital positioning, our goal is to refine the acoustic "true/false positive"detections in the helioseismic maps. Ultimately, this can help improve the assimilated boundary conditions of coronal and solar wind models, which in turn can aid in more accurate space weather forecasting.

Contribution Type

Poster

Theme

Solar Magnetism over Long-Time Scales

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